

unless it is shown that the traffic load will shortly exhaust the capacity of the existing equipment. Where no construction of radio facilities is requested, licensees must submit this evidence with their filing of any necessary authority required pursuant to section 214 of the Communications Act and part 63 of this chapter.

Frequency band (MHz)	Minimum number of voice channels (4 KHz or equivalent)
3700 to 4200 (20 MHz bandwidth)	900
5925 to 6425 (10 MHz bandwidth)	300
5925 to 6425 (20 MHz bandwidth)	600
5925 to 6425 (30 MHz bandwidth)	900
6525 to 6875 (10 MHz bandwidth)	300
10,700 to 11,700 (10 MHz bandwidth)	300
10,700 to 11,700 (20 MHz bandwidth)	600
10,700 to 11,700 (30 MHz bandwidth)	900
10,700 to 11,700 (40 MHz bandwidth)	900

[61 FR 26677, May 28, 1996, as amended at 62 FR 24583, May 6, 1997]

§ 101.143 Minimum path length requirements.

(a) The distance between end points of a fixed link in the private operational fixed point-to-point and the common carrier fixed point-to-point microwave services must equal or exceed the value set forth in the table below or the EIRP must be reduced in accordance with the equation set forth below:

Frequency band (MHz)	Minimum path length (km)
Below 1,850	N/A
1,850 to 7,125	17
10,550 to 13,250	5
Above 17,700	N/A

(b) For paths shorter than those specified in the Table, the EIRP shall not exceed the value derived from the following equation:

$$\text{EIRP} = \text{MAX EIRP} - 40 \cdot \log(A/B) \text{ dBW}$$

Where:

EIRP = Equivalent isotropically radiated power in dBW.

A = Minimum path length from the Table for the frequency band in kilometers.

B = The actual path length in kilometers.

NOTE TO PARAGRAPH (B): For transmitters using Automatic Transmit Power Control, EIRP that corresponds to the maximum

transmitter power must satisfy this requirement.

(c) Upon an appropriate technical showing, applicants and licensees unable to meet the minimum path length requirement may be granted an exception to these requirements.

NOTE TO PARAGRAPH (C): Links authorized prior to April 1, 1987, need not comply with this requirement.

§ 101.145 Interference to geostationary-satellites.

These limitations are necessary to minimize the probability of harmful interference to reception in the bands 2655–2690 MHz, 5925–6875 MHz, and 12.7–12.75 GHz on board geostationary-space stations in the fixed-satellite service.

(a) Stations authorized prior to July 1, 1976 in the band 2655–2690 MHz, which exceed the power levels in paragraphs (a) and (b) of this section are permitted to operate indefinitely, provided that the operations of such stations does not result in harmful interference to reception in these band on board geostationary space stations.

(b) 2655 to 2690 MHz and 5925 to 6875 MHz. No directional transmitting antenna utilized by a fixed station operating in these bands may be aimed within 2 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction. However, exception may be made in unusual circumstances upon a showing that there is no reasonable alternative to the transmission path proposed. If there is no evidence that such exception would cause possible harmful interference to an authorized satellite system, said transmission path may be authorized on waiver basis where the maximum value of the equivalent isotropically radiated power (EIRP) does not exceed:

(1) +47 dBW for any antenna beam directed within 0.5 degrees of the stationary satellite orbit; or

(2) +47 to +55 dBW, on a linear decibel scale (8 dB per degree) for any antenna beam directed between 0.5 degrees and 1.5 degrees of the stationary orbit.

(c) 12.7 to 12.75 GHz. No directional transmitting antenna utilized by a fixed station operating in this band may be aimed within 1.5 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction.

However, exception may be made in unusual circumstances upon a showing that there is no reasonable alternative to the transmission path proposed. If there is no evidence that such exception would cause possible harmful interference to an authorized satellite system, said transmission path may be authorized on waiver basis where the maximum value of the equivalent isotropically radiated power (EIRP) does not exceed +45 dBW for any antenna beam directed within 1.5 degrees of the stationary satellite orbit.

(d) Methods for calculating the azimuths to be avoided may be found in: CCIR Report No. 393 (Green Books), New Delhi, 1970; in "Radio-Relay Antenna Pointing for controlled Interference With Geostationary-Satellites" by C. W. Lundgren and A. S. May, Bell System Technical Journal, Vol. 48, No. 10, pp. 3387-3422, December 1969; and in "Geostationary Orbit Avoidance Computer Program" by Richard G. Gould, Common Carrier Bureau Report CC-7201, FCC, Washington, DC, 1972. This latter report is available through the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22151, in printed form (PB-211 500) or source card deck (PB-211 501).

§ 101.147 Frequency assignments.

(a) Frequencies in the following bands are available for assignment for fixed microwave services.

928.0-929.0 MHz (22)
 932.0-932.5 MHz (27)
 932.5-935 MHz (17)
 941.0-941.5 MHz (17) (18)
 941.5-944 MHz (27)
 952.0-960.0 MHz (22)
 1,850-1,990 MHz (20) (22)
 2,110-2,130 MHz (1) (3) (7) (20)
 2,130-2,150 MHz (20) (22)
 2,150-2,160 MHz (20) (22)
 2,160-2,180 MHz (1) (2) (20) (21)
 2,180-2,200 MHz (20) (22)
 2,450-2,500 MHz (22)
 2,650-2,690 MHz (22)
 3,700-4,200 MHz (8) (14) (25)
 5,925-6,425 MHz (6) (14) (25)
 6,425-6,525 MHz (24)
 6,525-6,875 MHz (14)
 10,550-10,680 MHz (19)
 10,700-11,700 MHz (8) (9) (19) (25)
 11,700-12,200 MHz (24)
 12,200-12,500 MHz (22)
 12,500-12,700 MHz (22)

12,700-13,200 MHz (22)
 13,200-13,250 MHz (4) (24) (25)
 14,200-14,400 MHz (24)
 17,700-18,820 MHz (5) (10) (15)
 18,820-18,920 MHz (22)
 18,920-19,160 MHz (5) (10) (15)
 19,160-19,260 MHz (22)
 19,260-19,700 MHz (5) (10) (15)
 21,200-22,000 MHz (4) (11) (12) (13) (24) (25) (26)
 22,000-23,600 MHz (4) (11) (12) (24) (25) (26)
 24,250-25,250 MHz
 27,500-28,350 MHz (16)
 29,100-29,250 MHz (5), (16)
 31,000-31,300 MHz (16)
 38,600-40,000 MHz (4)
 Bands Above 40,000 MHz

Notes

(1) Frequencies in this band are shared with control and repeater stations in the Domestic Public Land Mobile Radio Service and with stations in the International Fixed Public Radiocommunication Services located south of 25° 30' north latitude in the State of Florida and U. S. possessions in the Caribbean area. Additionally, the band 2160-2162 MHz is shared with stations in the Multipoint Distribution Service.

(2) Except upon showing that no alternative frequencies are available, no new assignments will be made in the band 2160-2162 MHz for stations located within 80.5 kilometers (50 miles) of the coordinates of the cities listed in § 21.901(c) of this chapter.

(3) Television transmission in this band is not authorized and radio frequency channel widths may not exceed 3.5 MHz.

(4) Frequencies in this band are shared with fixed and mobile stations licensed in other services.

(5) Frequencies in this band are shared with stations in the fixed-satellite service.

(6) These frequencies are not available for assignment to mobile earth stations.

(7) Frequencies in the band 2110-2120 MHz may be authorized on a case-by-case basis to Government or non-Government space research earth stations for telecommand purposes in connection with deep space research.

(8) This frequency band is shared with station(s) in the Local Television Transmission Service and, in the U.S. Possessions in the Caribbean area, with stations in the International Fixed Public Radiocommunications Services.

(9) The band segments 10.95-11.2 and 11.45-11.7 GHz are shared with space stations (space to earth) in the fixed-satellite service.

(10) This band is co-equally shared with stations in the fixed services under parts 74, 78 and 101 of this chapter.

(11) Frequencies in this band are shared with Government stations.

(12) Assignments to common carriers in this band are normally made in the segments